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REVIEW OF *PIONUS MAXIMILIANI* (KUHL)

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In the course of checking the identification of parrots in the study collection of Chicago Natural History Museum in 1940, it became apparent that certain specimens of *Pionus maximiliani* could not be identified with any of the geographic races currently recognized. A study of the species was accordingly undertaken and all material available in the United States was assembled; 120 labeled specimens, in addition to several without adequate data, were compared at this time. For the loan of specimens I am grateful to the curators of the bird collections in the American Museum of Natural History, the United States National Museum, the Museum of Comparative Zoology, the Carnegie Museum, the Academy of Natural Sciences of Philadelphia, and the California Academy of Sciences.

In 1957 a trip to Brazil permitted me to see the collections at the Museu Nacional do Rio and the Museu Paulista at São Paulo, where 40 specimens from southern Brazil were studied. A recent visit to the American Museum of Natural History resulted in the study of 29 specimens not previously examined, from southern Brazil, Paraguay, and Misiones in Argentina (the Kaempfer and Partridge collections). My thanks go to those who made possible my studies in the museums in Brazil and New York. I also wish to thank Mr. Rudyerd Boulton, former Curator of Birds, and Mr. Melvin Traylor, Associate Curator of Birds, at Chicago Natural History Museum, for their invaluable assistance and encouragement during the two phases of this study.

GEOGRAPHICAL VARIATION

Range of species.—Brazil from Goiás and Bahia south; eastern Bolivia; Paraguay; northern Argentina south through Tucumán, Chaco, and Corrientes.

Size.—Birds from the northern part of the species' range are considerably smaller in wing length than those found in the middle and southern parts.

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The cline in size in the eastern half of the range can be seen in the table below, where the average measurements of specimens examined are listed by localities from north to south.

	No. of males	Average meas. mm.	No. of females	Average meas. mm.
Northern Goiás, Pernambuco, and Bahia . . .	20	172.6	2	168.2
Southern Goiás and Minas Gerais	5	176.4	1	177
Estado Rio	3	185	1	181
São Paulo	15	186.6	5	182
Paraná	13	189.9	6	187.8
Eastern Paraguay	5	190.6
Misiones	2	190.0	5	189.8
Santa Catarina	5	191.6	4	187.3
Rio Grande do Sul	5	193.4	3	188

The largest of the eastern birds measured is a male from Rio Grande do Sul with a wing measurement of 205 mm. Tail measurements of *Pionus maximiliani* are unreliable because of extreme wear but are given below in the measurements of each race.

On the western half of the range, birds from northern Bolivia and Mato Grosso average smaller than birds from southern Bolivia and western Paraguay, though the cline is not so consistent as in Brazil, perhaps because of differences in altitude. As all altitudes are not known, this correlation can not be verified. South of Bolivia, in the Argentine provinces of Chaco, Salta and Tucumán, the size definitely increases, and here the largest specimens of the entire species are found.

	No. of males	Average meas. mm.	No. of females	Average meas. mm.
Northern Bolivia and adjacent Mato Grosso . .	19	185.9	6	176.8
Southern Bolivia, western Paraguay and adjacent Mato Grosso; Argentina in Chaco and Formosa	12	190.5	6	187.8
Argentina, provinces of Tucumán and Salta . .	6	206.1	7	198.7

Color.—In color, the birds from northern Brazil are the palest green with pale blue throats. Birds from Rio de Janeiro, southern Minas Gerais and southern Goiás, south through Brazil, eastern Paraguay and the states of Misiones and Corrientes in Argentina are much darker blue-green, with deep blue throats. Birds from Bolivia, western Paraguay, and the western provinces in Argentina are golden green with vinaceous to lilac throats. Transitional specimens appear between all adjacent divisions.

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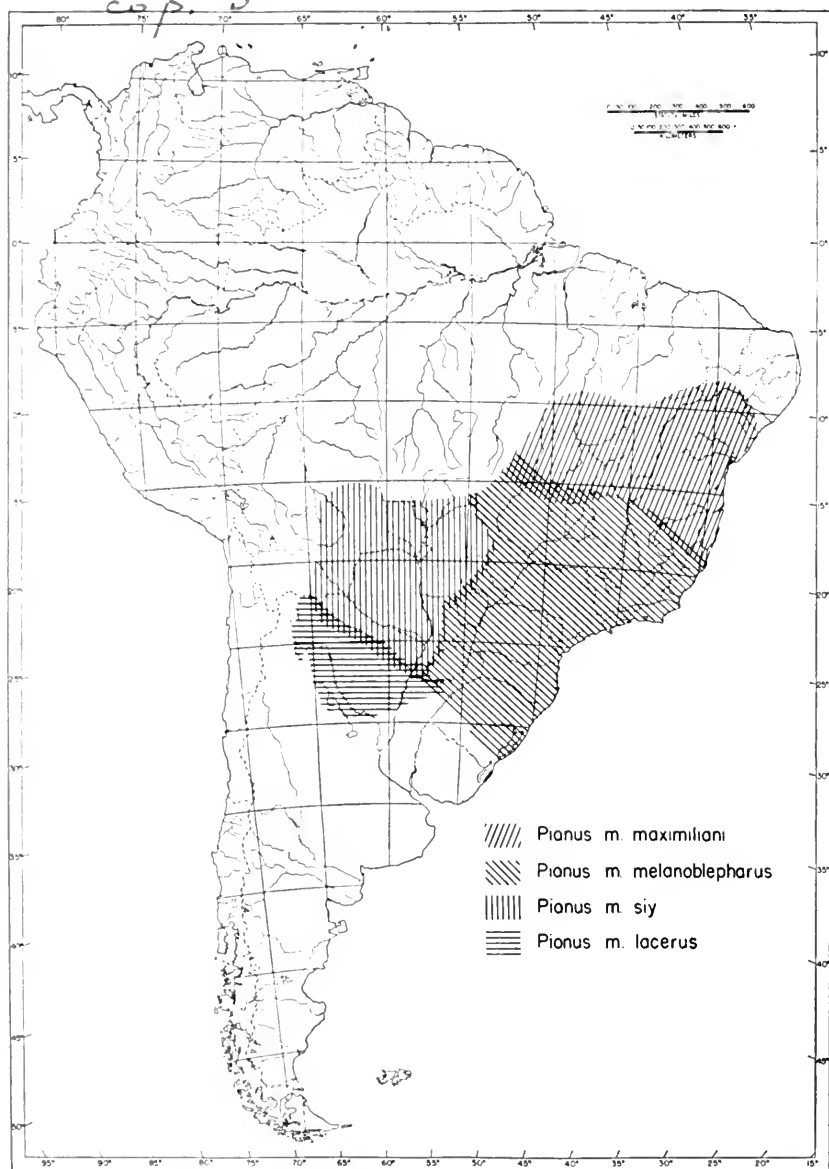


FIG. 65. Map showing distribution of *Pionus maximiliani* (Kuhl).

RACES

Three races of *Pionus maximiliani* are recognized by Peters (Check-list of birds of the world, 1937, 3: 215). They are *Pionus m. maximiliani*, eastern Brazil south through Rio de Janeiro; *P. m. siy*, eastern Bolivia, western and southern Brazil, and Paraguay; and *P. m. lacerus*, northwestern Argentina, in provinces of Salta and Tucumán. A fourth race, *P. m. melanoblepharus*, is treated by Peters as a synonym of the nominate race. *Melanoblepharus* was based on two skins from Therezópolis in the state of Rio de Janeiro, but the original description was inadequate. However, 93 of the specimens examined agree or compare favorably with these two birds, and therefore *melanoblepharus* should be recognized as a good race. The races of *Pionus maximiliani* are as follows:

***Pionus maximiliani maximiliani* (Kuhl)**

Psittacus Maximiliani Kuhl, 1820, Nova Acta Acad. Caes. Leop. Carol., 10: 72—Brazil (restricted to Viçosa on the Rio Peruhype, south of Caravellas, Bahia, by Hellmayr, 1929, Field Mus. Nat. Hist., Zool. Ser., 12: 450, note). New name for *Psittacus cyanurus* Wied, not of Shaw 1812.

Diagnosis.—Characterized by small size and pale blue throat; faded grass green to light bronze under parts; back lighter green than *melanoblepharus* to the south, less gold than *siy* to the west.

Range.—Northeastern Brazil south of the Amazon to about the central portion of Minas Gerais, cutting north of Araguay and excluding the southern portion of Goiás somewhere north of Santa Rita. The western boundary is probably near the boundary of Goiás and Mato Grosso.

I have examined birds from Pernambuco, Bahia, northern Goiás, and Espírito Santo, but found none from Piahy, which Peters includes in the range of this subspecies.

Measurements (averages in parentheses).—Twenty-three males: wing, 165–178 (173); tail, 67–89 (77.9); culmen, 24–26 (24.9). Three females: wing, 167–176 (171.1); tail, 74–87 (79.2); culmen, 24–26 (24.9) mm.

Remarks.—Birds from northern Goiás and Minas Gerais are as a rule very slightly larger than those from Bahia. Two males from Raul Soares, eastern Minas Gerais, 20° S. Lat., 43° W. Long., agree with *maximiliani* in wing and culmen measurements and in color of throat and under parts, but agree with the following race, *melanoblepharus*, in tail measurements and color of back.

***Pionus maximiliani melanoblepharus* Ribeiro**

Pionus maximiliani melanoblepharus Ribeiro, 1920, Revista do Museu Paulista, São Paulo, 12: 61—Therezópolis, Estado do Rio de Janeiro.

Diagnosis.—Differs from the nominate race by definitely larger size, a much darker blue throat, and darker green on the under parts and back. Differentiated from *siy* (to the west) by clearer and darker blue throat, darker bronze-green under parts, and a consistently darker and bluer green back. Though bronze-green occurs on the backs of many of this race, none have the light gold shades of *siy*. The blue of the throat is an intense shade of dark blue instead of the wine color of *siy* or the lilac of *lacerus*.

Range.—Extreme southern Goiás and southern Minas Gerais, south through Brazil to Corrientes in Argentina, and eastern Paraguay.

Measurements (averages in parentheses).—Fifty-one males: wing, 182–205 (187.1); tail, 80–124 (100); culmen, 24–30 (26). Nineteen females: wing, 181–201 (187.4); tail 80–120 (100.5); culmen, 24–29 (26.4) mm.

Remarks.—It is unfortunate that the type locality for this race is Therezópolis, its northern limit. Brazilian birds from São Paulo and south are more typical of the race. As previously stated, birds from the north tend to blend with *P. m. maximiliani*; those from the west (Paraguay and western Minas Gerais), with *siy*. Birds from Misiones and Corrientes in Argentina differ slightly from the race here characterized, being more bronze-green and having less intense blue on the throat. In this respect they tend to approach *lacerus* of Tucumán but are much smaller, and careful study shows them to be intermediate between *lacerus* and *melanoblepharus* of Santa Catarina, but nearer the latter.

***Pionus maximiliani siy* Souancé**

Pionus siy Souancé, 1856, Rev. Mag. Zool., (2), 8: 155—Paraguay and Bolivia.

Diagnosis.—Birds of this form have wine-colored throats, and the green of the under parts and of the back appears much lighter and more consistently bronze than in the preceding race. Birds from the northern half of the range of *siy* have more gold on the scapulars and less color on the throat, while those in the southern part approach *lacerus* in color but not in size.

Range.—Central and eastern Bolivia; northeastern Argentina, where it becomes intermediate with *lacerus* in Formosa and Chaco; and Paraguay, at least as far south as Hiati (Hyaty, about 26° S. Lat.).

Measurements (averages in parentheses).—Nineteen males from northern part of range: wing, 176–196 (185.9); tail, 82–96 (87.7); culmen, 24–26.5 (26.1). Six females from same range: wing, 167 (very worn) –190 (176.8); tail, 77–95 (84.5); culmen, 24–25 (24.6). Thirteen males from southern part of range: wing, 181 (worn) –197 (191); tail, 87–96 (89.3); culmen, 25–28 (26). Five females from same range: wing, 185–193 (187.8); tail, 80–92 (85.1); culmen, 25–28.5 (26.8). Thirty-two males from entire range: wing, 176–197 (188); tail, 82–96 (89.1); culmen, 24–28 (26). Eleven females from entire range: wing, 167 (worn) –193 (181.8); tail, 77–95 (84.8); culmen, 24–28.5 (25.5) mm.

Remarks.—Like *melanoblepharus*, this race averages larger in the south, with the dividing line between Descavaldos and Urucum de Corumba in western Mato Grosso, and south of Puerto Suarez and Santa Cruz de la Sierra in Bolivia. Three males from northern Bolivia are exceptions, with wings measuring 195.2, 196, and 196.1 mm. As previously noted, a specimen from Chaco, Argentina, measuring 197, appears to be a transition between the Formosa and Miraflores specimens and those from Tucumán and Salta. In all sections where any two races are contiguous there are examples of intergradation.

In his recently published paper (Notas ornithologicas sobre la coleccion del Instituto Miguel Lillo, Tucumán, IV, Acta Zoologica Lilloana, 1958, 16: 86), Dr. Claes Olrog includes the province of Jujuy, Argentina, “and north of Jujuy” in the range of *P. m. siy*, but I have not seen any such specimens, nor does his paper cite specific localities.

***Pionus maximiliani lacerus* (Heine)**

Pionias lacerus Heine, 1884, Jour. f. Orn., 32: 265—Tucumán.

Diagnosis.—Similar to *P. m. siy* but much larger, and the wine color of the throat slightly bluer and more solid, covering a larger area.

Range.—Argentina, in southern Salta and Tucumán, probably extending into Santiago del Estero and Catamarca.

Measurements (averages in parentheses).—Six males: wing, 197–213 (206.1); tail, 92–101 (97.5); culmen, 25–28 (26.6). Seven females: wing, 191 (worn) –207 (198.7); tail, 87–97 (93.1); culmen, 24–26 (25) mm.

Remarks.—Dr. Claes Olrog (loc. cit.) found that out of six males and five females from Tucumán the wing measurements of two birds were 202 and 205 mm., within the range of *lacerus*. The other nine birds had wings measuring 191–197, and he has grouped these Tuc-

mán birds with *siy*. As I have not examined these birds I cannot tell whether they are young or worn, and it is possible that at some future date the range of *siy* will be extended into Tucumán. Bearing in mind the intergradation of all contiguous races, it would be consistent to find many transitional specimens.

SPECIMENS EXAMINED

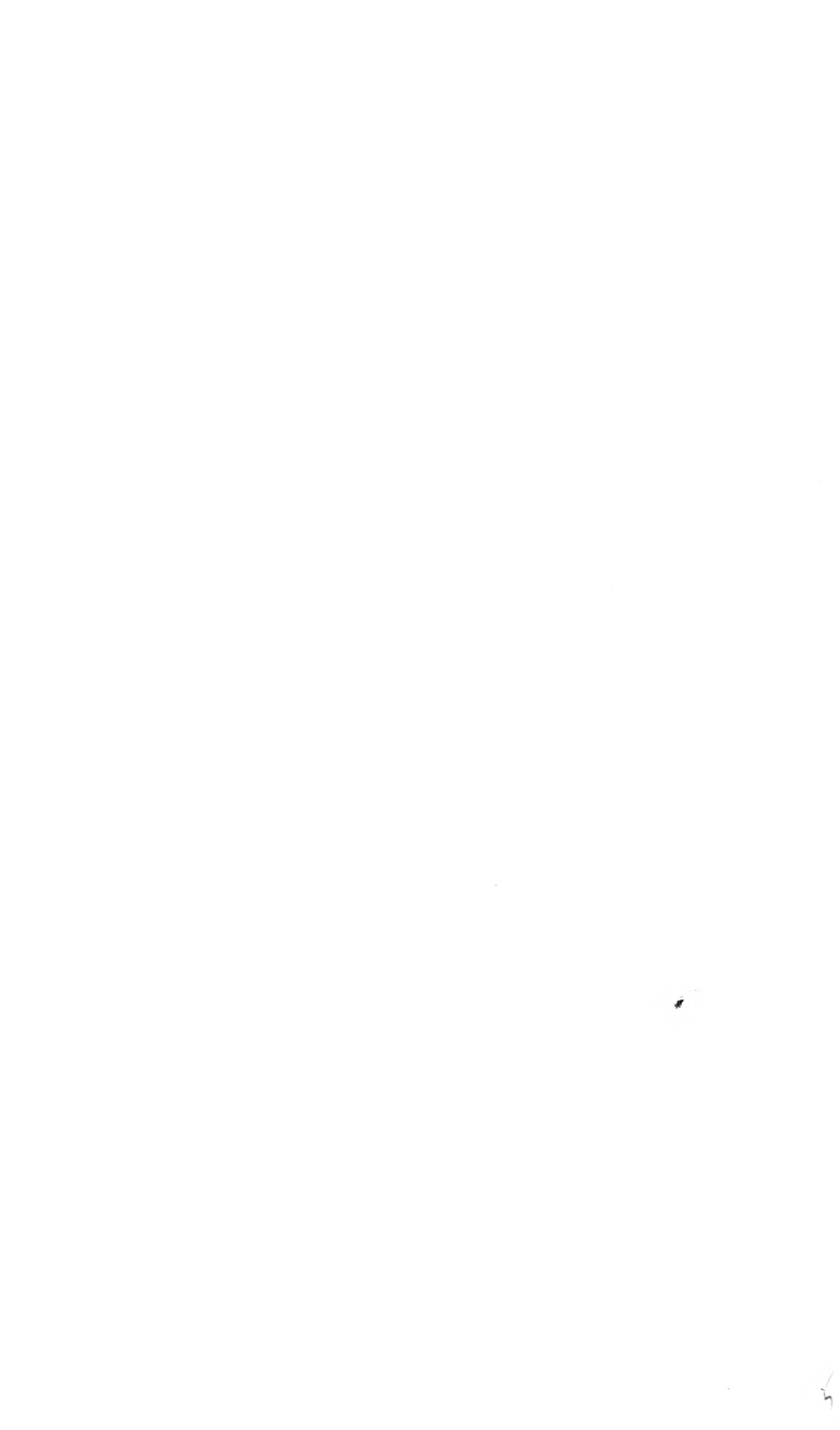
The following 200 specimens were examined:

Pionus m. maximiliani (34 specimens).—BRAZIL: no locality, 1 ♂, 1 ♀; Pernambuco (S. Lourenco, 1 ♀); Bahia (Serra Pahaô Jequié, 1 ♂; Macaco Secco, 1 ♂); Goiás (Barra do Rio São Domingos, 3 ♂, 1 ♀; Nova Roma, 15 ♂, 2 ♀, 1[?]); Minas Gerais (no locality, 1[?]; Raul Soares, 2 ♂; Marcieras, 1 ♀); Espírito Santo (Lagoa Juparaná, 2 ♂; Linhares, 1 ♂).

Pionus maximiliani melanoblepharus (93 specimens).—ARGENTINA: Misiones (no locality, 1 ♂, 2 ♀, 1[?]; Arroyo-Urugua-i, 2 ♂, 5 ♀); Corrientes (no locality, 1 ♂).—BRAZIL: no locality, 1 ♂, 1(?); Goiás (Santa Riga, 2[?]); Minas Gerais (Baixo Sussui, Rio Doce, 1 ♂; Araguary, 1 ♂, 1 ♀); Espírito Santo (no locality, 1[?]); Estado de Rio de Janeiro (Parque Nat. do Itatiaia, 1 ♂; Therezópolis, 2 ♂, 1 ♀; Rio de Janeiro, 1[?]); Goiás, 1 ♂; Estado de São Paulo (Victoria, 1 ♂; Rio Juquiá, 2 ♂, 1 ♀; Lins, 1 ♀; Venceslau, 2 ♂; Ituverava, 1 ♂; Lucelia, 1 ♀; Itaré, 1 ♀; Jaboticabal, 1 ♂; Valparaizo, 1 ♂, 1[?]; Rio Mogy-Guassu, 1 ♀; Rio Paranapanema, 2 ♂; Piracicaba, 2 ♂; Boa Esperanza, 1 ♂; Itapura, 1 ♂; Ourinhos, 1 ♂; Caconde, 1 ♂); Paraná (Rio Baile, 2 ♂, 1 ♀; Candido de Abreu, 1 ♂, 1 ♀; Roca Nova, 1 ♀; Jacarêzinho, 1[?]; Faz. Cajoa, 4 ♂, 2 ♀; Porto Camargo, 3 ♂; Lageado, Ipiranga, 1 ♂; Rio Paracai, 2 ♂; Monte Alegre, 1 ♂, 1 ♀); Santa Catarina (no locality, 1[?]; Ouro Verde, 2 ♂, 1 ♀; Redonda, 1 ♀; Palmital, 3 ♂, 2 ♀, 1[?]); Rio Grande do Sul (Itaqui, 1 ♂; Taquara, 3 ♂, 1 ♀; Ponohey, Pasca de Entrada, 2 ♀, 1[?]; São Francisco de Paula, 1 ♂).—PARAGUAY: Chaco, 1 ♂; Villarrica, 1 ♂; Yhú, 1 ♂; Ñu-Porá, 1 ♂; Sta. Barbara, 1 ♂.

Pionus maximiliani siy (58 specimens).—ARGENTINA: Formosa (Colonia Alfonso, 2[?]; Pilcomayo River, 1[?]); Chaco (Las Palmas, 1 ♂); "Miraflones," 1 ♂.—BOLIVIA: Yacuiba, 1 ♂; Puerto Suárez, 4 ♂, 1 ♀; Santa Cruz, 4 ♂, 1[?]; Buenavista, 4 ♂, 1 ♀.—BRAZIL: Goiás (no locality, 1 ♂); Mato Grosso (Descavaldos, 8 ♂, 4 ♀; Urucum de Corumba, 3 ♂; Porto Quebracho, 2[?]).—PARAGUAY: no locality, 2(?); Laglaize, 1(?); Puerto Pinasco, 1 ♂, 1(?); Hiati, 1(?); Puerto Casado, 2 ♂, 1 ♀; Horqueta, 3 ♂, 1 ♀; Rosario, 1 ♂, 2 ♀; Fort Wheeler, 1 ♂, 1 ♀.—Zoo specimen (USNM), 1(?).

Pionus maximiliani lacerus (15 specimens).—ARGENTINA: Tucumán (no locality, 3 ♂, 4 ♀, 1[?]); Concepción, 2 ♂, 2 ♀; Salta (no locality, 1 ♀, 1[?]; Metán, 1 ♂).



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